

# NASA TECH BRIEF

## *Manned Spacecraft Center*



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### Tolerance Analysis Program

#### **The problem:**

To devise a method for defining the required tolerances in procurement or test specifications. The technique should be useful in the synthesis and analysis phases of the subsystem design processes.

#### **The solution:**

A digital computer program which can be used to determine tolerance values of an end-to-end signal chain or flow path, given a preselected probability value.

#### **How it's done:**

The tolerance analysis program takes known circuit element hardware test data, such as a histogram or a specified nominal value with an associated set of limits, and statistically sums the probability density functions (PDF's) of the individual circuit elements into an overall PDF for the complete end-to-end signal path. From the overall PDF, the program computes a set of limits con-

taining the desired preselected probability value. This program does not assume the nature or shape of the individual building block or circuit element PDF.

#### **Note:**

1. This program is written in FORTRAN IV and Binary for use on the IBM-360 computer system.
2. Requests for further information may be directed to:

COSMIC  
112 Barrow Hall  
University of Georgia  
Athens, Georgia 30601  
Reference: B71-10389

#### **Patent status:**

No patent action is contemplated by NASA.

Source: H. K. Watson of  
North American Rockwell Corp.  
under contract to  
Manned Spacecraft Center  
(MSC-17487)

Category 09